

CLAIMS:

1. Record carrier of a writable type for recording information by writing marks in a track on a recording layer via a beam of radiation entering through an entrance face of the record carrier and constituting a scanning spot having an effective diameter on the track,
 - the marks having lengths corresponding to a number of channel bit lengths T
- 5 and the shortest marks having a length of a predefined minimum number d of channel bit lengths T for being detectable via the scanning spot having said effective diameter,
 - the recording layer comprising a pregroove (14) for indicating the track, the pregroove exhibiting a wobble constituted by displacements of the pregroove in a direction transverse to the longitudinal direction of the track, and the pregroove comprising a
- 10 pregroove modulation of the depth and/or width of pregroove areas for constituting a carrier pattern containing focus marks (18,19),
 - the focusmarks having lengths substantially larger than the predefined minimum number d of channel bit lengths T for being substantially longer than the effective diameter of the scanning spot, and
- 15 - the carrier pattern constituting a focus area (12) at a predefined location on the recording layer.
2. Record carrier as claimed in claim 1, wherein the focus-marks have lengths of at least two times the predefined minimum number d of channel bit lengths T.
- 20 3. Record carrier as claimed in claim 1 or 2, wherein the focus marks comprise land focus marks of zero depth alternating with pit focus marks of a predefined depth and width.
- 25 4. Record carrier as claimed in one of the preceding claims, wherein the land focus marks and the pit focus marks succeed each other with a duty cycle smaller than 50%, preferably smaller than 10%, the pit focus marks being longer.

5. Record carrier as claimed in claim 3, wherein the pit focus marks have lengths of at least 100 channel bit lengths T and wherein said duty cycle is less than 10%.
6. Record carrier as claimed in one of the claims 3 to 5 as far as being dependent on claim 3, wherein a sum period of a subsequent pit focus mark and land focus mark equals $N/2$ times the wobble length, N being an integer, and wherein of the land focus marks are aligned with locations where the wobble has no deviation.
7. Record carrier as claimed in one of the claims 3 to 6 as far as being dependent on claim 3, wherein a number of occurrences of a land focus mark directly adjacent an other land focus mark on a neighboring track is minimized, preferably a land focus mark in the carrier pattern does not have a land focus mark directly adjacent on a neighboring track.
8. Record carrier as claimed in one of the claims 3 to 7 as far as being dependent on claim 3, wherein the land focus marks are arranged randomly in the carrier pattern such that within a radius R equal to several times the track pitch there is no periodicity in the land focus mark positions in any direction.
9. Record carrier as claimed in one of the preceding claims, wherein a start position of the land focus marks is aligned with a sync of the wobble.
10. Record carrier as claimed in one of the preceding claims, wherein the focus marks are located only within a monotone wobble area.
11. Record carrier as claimed in one of the preceding claims, wherein the focus marks cover at least one track, preferably more.
12. Record carrier as claimed in one of the preceding claims, wherein the record carrier comprises at least a first recording layer (40) and a second recording layer (41), the first recording layer being present at a position closer to the entrance face than the second recording layer, and each recording layer having the focus marks.
13. Record carrier as claimed in claim 12, wherein each recording layer comprises the focus marks at a substantially corresponding radial position.

14. Record carrier as claimed in claim 2, wherein the predefined minimum number d is 3 channel bit lengths T ($d = 3T$), and the focus marks have lengths of at least $6T$, in particular the lengths being in the range of $8T$ to $14T$.
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15. Record carrier as claimed in claim 1, wherein the carrier pattern substantially only contains said focus marks.
16. Record carrier as claimed in claim 1, wherein the pregroove modulation is
- 10 representing additional information encoded by the focus marks according to a predefined channel coding algorithm, which predefined channel coding algorithm differs from a channel coding algorithm representing said recorded information.
17. Device for scanning a track on a record carrier (11) via a beam of radiation
- 15 (24), the track comprising marks on a recording layer, the beam entering through an entrance face of the record carrier and constituting a scanning spot having an effective diameter on the track, the marks having lengths corresponding to an integer number of channel bit lengths T and the shortest marks having a length of a predefined minimum number d of channel bit lengths T for being detectable via the scanning spot having said effective diameter, the
- 20 recording layer comprising a pregroove for indicating the track, the pregroove exhibiting a wobble constituted by displacements of the pregroove in a direction transverse to the longitudinal direction of the track, and the pregroove comprising a pregroove modulation of the depth and/or width of pregroove areas for constituting a carrier pattern containing focus marks, the focus marks having lengths substantially larger than the predefined minimum
- 25 number d of channel bit lengths T for being substantially longer than the effective diameter of the scanning spot, and the carrier pattern constituting a focus area at a predefined location on the recording layer,
- the device comprising
- a head (22) for providing the beam,
 - 30 - focus servo means (25) for focusing the beam on the track for constituting said scanning spot,
 - a front-end unit (31) for generating a scanning signal (33) for detecting marks in the track, and

- a focus adjustment unit (32) for locating the focus area and for adjusting the focus servo means in dependence on an amplitude of the scanning signal due to the carrier pattern during scanning the focus area.

5 18. Device as claimed in claim 17, wherein the focus marks have lengths of at least two times the predefined minimum number d of channel bit lengths T .

19. Device as claimed in claim 17 or 18, wherein the focus marks comprise land focus marks of zero depth alternating with pit focus marks of a predefined depth and width.

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20. Device as claimed in claim 19, wherein the pit focus marks and land focus marks succeed each other with a duty cycle smaller than 50%, preferably smaller than 10%, the pit focus marks being longer.

15 21. Device as claimed in one of the claims 17 to 20, wherein the focus servo means (25) are arranged for focusing on one of at least a first recording layer (40) and a second recording layer (41) in the record carrier, the first recording layer being present at a position closer to the entrance face than the second recording layer, and each recording layer having the focus pattern, and the focus adjustment unit (32) being arranged for, for each
20 recording layer separately, locating the focus area and adjusting the focus servo means (25) in dependence on an amplitude of the scanning signal due to the carrier pattern during scanning the focus area of the respective layer.

22. Device as claimed in one of the claims 17 to 21, wherein the focus adjustment
25 unit (32) is arranged for writing a focus test pattern and for further adjusting the focus servo means (25) in dependence on jitter or errors detected during subsequently reading said test pattern.

23. Device as claimed in one of the claims 17 to 22, wherein the device comprises
30 a pregroove demodulation unit (34) for retrieving, from the scanning signal, additional information encoded in the pregroove modulation according to a predefined channel coding algorithm, which predefined channel coding algorithm differs from a channel coding algorithm representing said recorded information.